

The logo for DPF-PHENO 2024 features the text "DPF-PHENO 2024" in a bold, sans-serif font. The text is white and set against a blue rectangular background that has a subtle, light-colored cloud-like pattern.

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Probing superheavy dark matter through lunar radio observations of ultrahigh-energy neutrinos

Wednesday 15 May 2024 14:45 (15 minutes)

We constrain limits on the decay and annihilation of very heavy dark matter (VHDM) particles in the mass range of $10^9 - 10^{16}$ GeV with the aid of projected neutrino flux sensitivity of future generations of neutrino telescopes, such as GRAND and IceCube-Gen2 radio upgrade. Particularly interesting constraints are obtained from the future lunar ultralong wavelength (ULW) radio telescope, which aims to detect the resultant radio pulse originating in the interaction of ultrahigh energy neutrinos (UHE ν) with the lunar regolith. However, the limits from terrestrial detectors provide constraints up to a few times 10^{13} GeV, beyond which the measurements by ULW will be important. The ULW energy range at *gtrsim* 10^{13} GeV is free from any astrophysical background, providing the best limits on VHDM decay and annihilation.

Mini Symposia (Invited Talks Only)

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